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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
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| 10/714,747 | 11/17/2003 | John H. Roberts | RO9759P | 3357 |

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| EXAMINER | |
|---|---|
| SAINT SURIN, JACQUES M | |

| ART UNIT | PAPER NUMBER |
|---|---|
| 2856 | |

DATE MAILED: 11/03/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

| Office Action Summary | Application No. | Applicant(s) | |
|---|---|---|---|
| | 10/714,747 | ROBERTS, JOHN H. | |
| | Examiner | Art Unit | |
| | Jacques M Saint-Surin | 2856 | |

*-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --*

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

1)☒ Responsive to communication(s) filed on *17 November 2003*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

4)☒ Claim(s) *1-21* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-21* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

**Application Papers**

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *17 November 2003* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *09/23/04*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

## DETAILED ACTION

1. Claims 1-21 are presented for examination.

### *Claim Rejections - 35 USC § 102*

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) and the Intellectual Property and High Technology Technical Amendments Act of 2002 do not apply when the reference is a U.S. patent resulting directly or indirectly from an international application filed before November 29, 2000. Therefore, the prior art date of the reference is determined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

3. Claims 1-7 and 18-19 are rejected under 35 U.S.C. 102(e) as being anticipated by Suenaga (US Patent 6,784,352).

Regarding claim 1, Suenaga discloses:

a) an acoustic source (sound source device 54, see: col. 6, line 67) positioned relative to the drum (drum body 10, see: col. 3, line 35 and Fig. 3) to provide acoustic energy to the drumhead (drumhead 11, see: col. 3, line 36 and Fig. 3); and

b) an acoustic energy sensor (vibration detection sensor 51 can accurately detect vibration of the drumhead 11) positioned to receive acoustic energy from the drumhead

(11) and configured to generate an output corresponding to the acoustic energy received by the acoustic sensor (the sound source device 54 generates musical tone signals based on vibration of the drumhead 11 detected by the vibration detection sensor 51 and vibration of the cylinder 10 detected by the vibration detection sensor 52, see: col. 7, lines 1-5).

Regarding claim 18, as discussed above, it is rejected for the reasons set forth for claim 1. Furthermore, Suenaga discloses the vibration detection sensor 51 detects vibration of the support plate 21 to produce electric signals which are supplied to the electronic musical tone generation section 56 (see: col. 6, lines 40-42).

Regarding claim 2, Suenaga discloses the acoustic source 54 comprises a speaker 58 to provide acoustic energy to the drumhead 11 as shown in Fig. 6.

Regarding claims 3, and 6-7, Suenaga discloses acoustic energy sensor 51 comprises a microphone (vibration detector 52 which is configured by a piezoelectric sensor and other circuits elements (see: col. 6, lines 47-49). Suenaga further discloses the acoustic energy sensor (51) comprises a microphone (vibration detector 52) and a plurality of microphones 51 and 52. Note that although Suenaga does not specifically recite a microphone, the vibration detectors inherently include microphones or transducers or receivers which are equivalent for receiving the acoustic signals from electronic tone generation 56.

Regarding claims 4-5, Suenaga discloses a plurality of acoustic sources (sound source 54, 57 and 58 and a plurality of speakers 58 and 56, as shown in Fig. 6.

Regarding claim 19, Suenaga shows in Fig. 6 a speaker 58 which is spaced apart from the surface of the drumhead 11.

## *Claim Rejections - 35 USC § 103*

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

5. Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over Suenaga (US Patent 6,784,352).

Regarding claim 8, Suenaga does not disclose wherein the plurality of acoustic sources are spaced apart along a circumferential axis of the drumhead and the acoustic sensor is located substantially equidistant from the plurality of acoustic sources along the circumferential axis. Note that Suenaga discloses it is preferable that the vibration detection sensor 51 is attached to a center of the lower surface of the support plate 21 (col. 6, lines 45-47). Figs. 3 shows the drum, the drumhead and the support while Fig. 6 shows the sound sources and the acoustic sensor. It would have been a matter of design choice since applicant has not specifically sated what advantages one of ordinary skill in the art would benefit from that particular arrangement and it appears that the invention would perform equally well with the arrangement of Suenaga.

6. Claims 9-16 and 20-21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Suenaga (US Patent 6,784,352) in view of Tichy (US Patent 5,251,264).

Regarding claims 9, 10, 13-14 and 20-21, Suenaga does not specifically disclose or suggest a meter configured to provide a measurement of the acoustic properties of the drumhead. Tichy discloses the microphone provides a method and structure for cancelling out mechanical vibrations from its output signal (as measured by a meter (22) for instance)) and producing an output voltage in response only to the acoustic waves (27) input to the microphone from a source of such energy, see: col. 6, lines 30-35. Tichy further shows in Fig. 6 a meter 22 which includes a display. It would have been obvious to one having ordinary skill in the art at the time of the invention to utilize in Suenaga the meter of Tichy because it would perform effectively the measurement of the acoustic waves for reliably determining the acoustic properties of the drumhead.

Regarding claim 11, as discussed above, it is rejected for the reasons set forth for claim 2.

Regarding claim 12, as discussed above, it is rejected for the reasons set forth for claim 19.

Regarding claims 13-14 and 20, Suenaga discloses vibration detection sensor 51 detects vibration of the support plate 21 to produce electric signals, but does not disclose or suggest the microphone is structured to convert acoustic energy into a voltage having an amplitude, the amplitude of the voltage corresponding to the amplitude of the acoustic energy emitted from the drumhead. Tichy discloses the microphone provides a method and structure for cancelling out mechanical vibrations from its output signal (as measured by a meter (22) for instance)) and producing an

output voltage in response only to the acoustic waves (27) input to the microphone from a source of such energy, see: col. 6, lines 30-35

Regarding claim 15, as discussed above, it is rejected for the reasons set forth for claim 4.

Regarding claim 16, as discussed above, it is rejected for the reasons set forth for claim 8.

7. Claim 17 is rejected under 35 U.S.C. 103(a) as being unpatentable over Suenaga (US Patent 6,784,352) in view of Tichy (US Patent 5,251,264) as applied to claim 9-16 and 21 above, and further in view of May (US Patent 6,121,528).

Regarding claim 17, Suenaga in view of Tichy does not disclose the drum includes a plurality of tension bolt-lug nut pairs located around a periphery of the drum and a tension adjusting device located in one of the tension bolt-lug nut pairs. May discloses an electroacoustical amplification of a drum by means of a microphone mounted within the drum shell on an adjustable mount that permits movement of the microphone for tuning and having a support mounted on the inner ends of the bolts for the lugs for mounting the drum tensioning hoops, see: col. 2, lines 41-46. It would have been obvious to one having ordinary skill in the art at the time of the invention to utilize in the above combination the electroacoustic amplification of May as taught above because it would provide a tunable drum assembly including means for electroacoustical amplification having a magnetic supporting means that does not require penetration of the shell thereby obtaining a second combination which is effective to reproduce accurately a wide range of frequencies.

## *Conclusion*

8. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Donohoe (US Patent 5,892,168) discloses a drum head with floating muffling ring.

Kamijima et al. (US Patent 6,794,569) discloses an acoustic instrument triggering device and method.

Hohlfeld et al. (US Patent 5,902,252) discloses a device and process for measuring acoustic reflectance.

Tobia, Jr. (US Patent 5,583,307) discloses a drum for triggering electronic drums.

Varterasian (US Patent 4,480,473) discloses an acoustic inspection method.

Chiba et al. (US Patent 4,899,636) discloses an instrument for tuning musical instruments.

Wellings (US Patent 4,577,503) discloses an electro-acoustic transducer.

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jacques M Saint-Surin whose telephone number is (571) 272-2206. The examiner can normally be reached on Monday-Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Hezron Williams can be reached on (703) 305-4705. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Jacques M. Saint-Surin
October 29, 2004

HEZRON WILLIAMS
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